



COMMUNITY FACT SHEET

DUST

This fact sheet is issued by the Environment Protection Authority, using the power given to it under section 13(1)(l) of the Environment Protection Act 1970, to provide information and education to the public on the protection and improvement of the environment.

WHAT IS DUST?

Dust is made up of many different materials that are *suspended and blown about in the air*. Dust is an example of airborne particle pollution that affects the air we breathe.

Dust is generated from many different sources, such as unsealed roads, dry lake beds, cattle feedlots and premises where quarrying, concrete crushing or metal recycling is carried out. EPA becomes involved when dust is generated from industry.

The size of dust particles depends on where they come from. Coarse (large) particles are often found near unsealed roads and quarries, whereas fine (small) particles typically come from motor vehicle exhausts and smoke from fires. Coarse particles tend to be deposited closer to the source, whilst fine particles can be carried a long way, especially on a windy day.

Coarse dust particles can be a nuisance when they get into houses or discolour washing on the line. Fine particles are responsible for reducing visibility and for dirtying buildings and, when concentrated enough, can become a health concern.

Some dust particles come from natural sources. Such particles include pollen grains, fungal spores and salt crystals from sea spray. Occasionally during very dry weather, dust can be lifted from soils, causing a dust storm.

In the future, we expect Victoria to become hotter and drier due to climate change. As a result, dust is expected to become more frequent and will continue to affect Victoria's air quality.

HOW IS DUST MEASURED?

The most commonly measured form of dust particulate matter (PM) is PM₁₀, defined as the mass of particles smaller than 10 micrometres (0.01 mm) in a cubic metre of air.

The National Environment Protection (Air Quality) Measure ('the Air NEPM') exists for dust particles. The Air NEPM standard for concentration of PM₁₀ particles in the air (for the protection of human health) is 50µg/m³ averaged over 24 hours. Concentrations higher than this standard would constitute a potential health risk.

Sources of dust like unsealed roads usually generate some particles smaller than 10 micrometres (PM₁₀), plus quite a lot of particles larger than 10 microns.

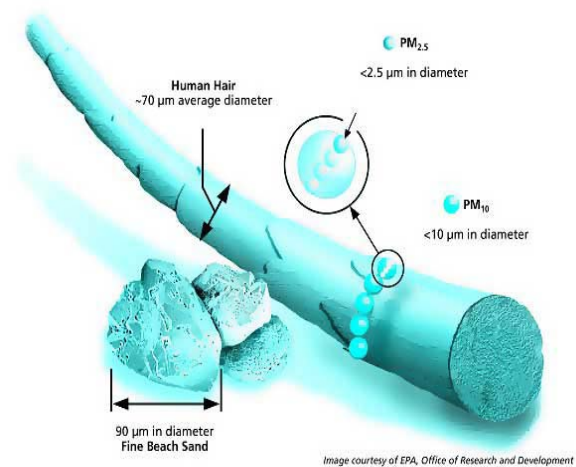


Image courtesy of EPA, Office of Research and Development

HOW MIGHT YOU BE AFFECTED?

PM₁₀ particles, if breathed in, are small enough to make their way into the lungs, affecting human health.

Depending on a range of factors, including degree of exposure and existing health, PM₁₀ dust can aggravate existing respiratory and cardiovascular disease, decrease lung function, exacerbate asthma and alter the body's defence and lung-clearance mechanisms.

Those most sensitive to PM₁₀ include the elderly, children and people with existing respiratory or cardiovascular disease.

Even people who are healthy may have temporary symptoms, such as irritation of the eyes, nose and throat; coughing; phlegm; chest tightness; and shortness of breath.

LEGISLATION

EPA Victoria is a statutory authority, responsible for administering the *Environment Protection Act 1970* ('the Act'). The Act empowers the Authority to



recommend to government the making of State environment protection policies ('SEPPs').

Part VI of the Act relates to clean air, and the two air SEPPs – Air Quality Management, and Ambient Air Quality – set objectives for controlling particle pollution.

The Ambient Air Quality SEPP defines the standard measure for PM₁₀ as set by the air NEPM.

Standard EPA licence and notice conditions require that: *'Nuisance dust must not be discharged beyond the boundaries of the premises'*. Dust that is affecting the local amenity, aesthetic enjoyment and visibility of the air environment, or dust which is in excess of the air NEPM PM₁₀ standard would constitute a breach of this licence condition.

Industries that are unlicensed are still required to minimise the production of dust to prevent a breach of Section 41 of the Act.

HOW IS AIR QUALITY MONITORED BY EPA?

EPA measures particles in the air at 11 air monitoring stations set up across the state as part of its ambient air monitoring program. These stations can give a general status of air quality for the region.

EPA may also undertake dust monitoring in places where pollution levels are high, using portable instruments.

A portable dust monitoring program involves a series of instruments in key locations to measure particulate matter. The instruments measure the concentration of dust in the air, taking many readings throughout the day. The readings are then compared to the NEPM standard to assess the impact of dust on human health.

The presence of dust can be sporadic and is greatly affected by seasons and the weather. Data measurements are therefore collected over several months, so that a complete understanding of the local air environment can be gained.

Even if the dust monitoring does not identify a health issue, the data can still provide an understanding of the general air quality and give an indication to the community of the likely level of impact from dust.

COMMUNITY REPORTING OF DUST ISSUES

Community members can report dust pollution by phoning EPA's Pollution Watch Line on 03 9695 2777 or 1800 444 004. Community reports are an effective way of making EPA aware of the current local impacts of dust.

When a dust report is made, EPA collects information from the reporter. This information helps to identify the likely source of the dust, the effect of the dust and the action EPA needs to take. Information collected is likely to include:

- name and address of reporter
- time of dust event
- identity and location of alleged source (if known)
- length of time of the impact and frequency if it has occurred before
- the effect the dust is having on the reporter
- wind direction and strength, if known.

In response to reports, EPA often contacts potentially relevant industrial premises in the area to make them more aware of how their operations could be affecting residents. Only the content of the report is passed on. The privacy and confidentiality of pollution reporters is not released by EPA.

HOW DOES EPA INVESTIGATE DUST ISSUES?

Investigations into dust reports are performed by authorised EPA officers and may require scientific analysis of the problem. As dust can travel a long way from its source, tracing dust to a single producer can be difficult.

The EPA officer will need to verify the presence of dust on the reporter's property and understand how the dust is adversely affecting them. The officer will consider the character, severity, frequency and duration of the dust's impact and the number of persons affected.

The officer will use an investigative process to attempt to track the dust to its source. This includes performing upwind and downwind assessments, assessing weather conditions and plotting the dust plume on a map.

There may be further discussion with the reporter about how the dust is affecting them, as well as discussing with the reporter their willingness to make a legal statement (called an affidavit) that may be used as evidence in court.

In some cases, the complicated mix of industrial and residential land uses calls for a better understanding of the extent and sources of the dust problem. In such circumstances, EPA has developed specially designed monitoring programs.

PROSECUTING DUST OFFENSES

If EPA can verify the dust source and gather supporting evidence from community members that demonstrates an adverse impact on people or the environment, we can then pursue legal action, which will require the participation of the individuals reporting the dust.

EPA may require individuals reporting dust to sign sworn (or affirmed) affidavits detailing the dates and precise times of the complaint, why and how the dust



affects their amenity and well-being. We recommend community reporters to use a diary to help record details of ongoing dust incidents.

We may request individuals to attend court to give evidence. In determining whether to take legal action, EPA will also consider:

- any formal EPA conditions regulating the site
- the frequency, concentration and content of the dust
- the number of people impacted by the dust and the extent of spread
- prevailing weather conditions.

There is a lengthy and involved process in prosecuting operators emitting offensive dust. Reporters should be aware of the time it takes and that they may be called to give evidence in court.

WHAT CAN COMPANIES DO TO REDUCE DUST?

Modern industry is becoming increasingly aware of public expectations to operate in a safe and sustainable way.

Many industries are progressively improving operations to reduce environmental impact as part of normal practice.

EPA expects continuous review of operational procedures to reduce environmental impact and works closely with dust-producing industries to reach agreed outcomes above and beyond legislated requirements.

Some industries, such as mining and extractive industries, are required to actively monitor dust and report it to EPA. Dust-suppression activities such as restricting traffic movements, watering, use of chemical binding agents, planting grass and reducing bare areas of soil can reduce potential dust sources.

BEING PROACTIVE ABOUT DUST

EPA's priority is to prevent dust impacts through effective regulation and working closely with industry to continually improve environmental standards. This approach involves:

- applying licence conditions to many larger industrial operations to regulate dust emissions
- issuing enforcement notices to require industries to change practices, install new equipment or conduct monitoring
- issuing fines when activities can be shown to have breached licences or notices
- working with industry to engage with its local communities and voluntarily make changes for the good of the environment

- requiring operators to make and implement environment improvement plans that detail site improvements to minimise off-site impacts
- providing planning guidance on recommended buffer distances for industrial dust emissions
- dust monitoring in situations where there is an alleged ongoing dust issue.

PLANNING TO PREVENT DUST

Local government administers planning schemes. Councils have a key role to ensure that planning permit applications for smaller, potentially polluting sources are properly assessed.

EPA publication AQ 2/86, *Recommended buffer distances for industrial residual air emissions*, gives guidelines for planning authorities to address worst-case operating conditions in specific industry categories, to minimise impacts on surrounding communities.

EPA encourages local government to avoid encroachment on these buffer distances by providing guidance and specific advice.

Councils also assess compliance with existing planning permits and can take action to address amenity and health issues. EPA is therefore not the only body that can take enforcement action on dust issues.